



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/519,773

07/08/2005

Christoph Benz

HI04011USU (P01097US)

6920

34408 7590 08/13/2008  
THE ECLIPSE GROUP LLP  
10605 BALBOA BLVD., SUITE 300  
GRANADA HILLS, CA 91344

EXAMINER

OLANIRAN, FATIMAT O

ART UNIT

PAPER NUMBER

2615

MAIL DATE

DELIVERY MODE

08/13/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/519,773	<b>Applicant(s)</b> BENZ ET AL.	
	<b>Examiner</b> FATIMAT O. OLANIRAN	<b>Art Unit</b> 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) 1-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/21/2005</u> .   | 6) <input type="checkbox"/> Other: ____.                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 27-28, 37-38 are rejected under 35 U.S.C. 102(b) as being anticipated by Sharples (5204980).

Claim 27, Sharples discloses a method of evaluating the reception quality in a stereo radio receiver (abstract) comprising a receiver for generating the stereo multiplex signal from which a decoder generates the signal and, via an auxiliary carrier (col. 4 line 4-20), generates the top and the bottom side-band of the signal, where a criterion for evaluating the quality of reception is derived from the signal energy or power of the top and bottom side-band of the signal (col. 2 line 51-66) .

Claim 28, Sharples discloses where the criterion for evaluating the reception quality is derived from a comparison between the signal energy or power of the top side-band with that of the bottom side-band of the signal (col. 2 line 14-18) and where the reception quality decreases when the difference between the two signal energies or powers increases, increases when the difference decreases, and is at a maximum when they are the same (col. 2 line 53-65).

Art Unit: 2615

Claim 37, Sharples discloses a stereo radio receiver comprising a receiver for generating the stereo multiplex signal and a decoder for generating the signal and the top and bottom side-band of the signal from the stereo multiplex signal via an auxiliary carrier, where a criterion for evaluating the quality of reception is derived from the signal energy or power of the top and bottom side-band of the signal (col. 2 line 51-66 and col. 3 line 50-54).

Claim 38, Sharples discloses where the criterion for evaluating the reception quality is derived from a comparison between the signal energy or power of the top side-band with that of the bottom side-band of the signal and where the reception quality decreases when the difference between the two signal energies or powers increases, increases when the difference decreases, and is at a maximum when they are the same (col. 2 line 51-56 and col. 3 10-12).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 29, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharples (5204980) in view of Wildhagen (6671378).

Art Unit: 2615

Claim 29, analyzed with respect to claim 27, Sharples discloses where the criterion for evaluating the reception quality is derived from the correlation of the signals or of the power of the top and the bottom side-band of the signal and where the reception quality increases with increasing correlation and decreases with decreasing correlation (col. 2 line 53-65).

Sharples does not explicitly disclose cross-correlation of the signals.

Wildhagen discloses where the criterion for evaluating the reception quality is derived from the variance of the signals or of the power of the top and the bottom side-band of the signal and where the reception quality increases with increasing correlation and decreases with decreasing correlation (abstract line 5-11 and col. 4 line 26-62).

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the receiver of Sharples with the variance method of Wildhagen in order to have reliable information of the noise power in the audio signal as taught by Wildhagen (col.2 line 54-55).

In addition it would be obvious to one of ordinary skill in the art at the time the invention was made that the variance is related and analogous to the cross-correlation.

Claim 39 analyzed with respect to claim 37, Sharples discloses where the criterion for evaluating the reception quality is derived from the correlation of the signals or of the power of the top and the bottom side-band of the signal and where the reception quality increases with increasing correlation and decreases with decreasing correlation.

Art Unit: 2615

Sharples does not disclose where the criterion for evaluating the reception quality is derived from cross-correlation of the signals or of the power of the top and the bottom side-band of the signal.

Wildhagen discloses where the criterion for evaluating the reception quality is derived from the variance of the signals or of the power of the top and the bottom side-band of the signal and where the reception quality increases with increasing correlation and decreases with decreasing correlation (abstract line 5-11 and col. 4 line 26-62).

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the receiver of Sharples with the variance method of Wildhagen in order to have reliable information of the noise power in the audio signal as taught by Wildhagen (col.2 line 54-55).

In addition it would be obvious to one of ordinary skill in the art at the time the invention was made that the variance is related and analogous to the cross-correlation.

5. Claims 30, 32-33, 40, 42-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharples (5204980).

Claim 30 analyzed with respect to claim 27, Sharples discloses where the bottom side-band is filtered by a first filter and the top side-band is filtered by a second filter (col. 3 line 1-5).

Sharples does not explicitly disclose bandpass filter. However examiner takes official notice on the limitation bandpass filter. Bandpass filtering means are well known in the art at the time of the invention. In addition it would be obvious to one of ordinary skill in

Art Unit: 2615

the art at the time the invention was made that the filter type would be determined by design preferences in order to extract the sideband signals.

Claim 32 analyzed with respect to claim 27, 30, Sharples discloses where the pass bands of the two filters do not overlap (inherent to Sharples Fig. 2a and col. 3 line 1-5).

Claim 33 analyzed with respect to claim 27, 30, Sharples does not explicitly disclose where the two bandpass filters are second-order Butterworth bandpass filters.

However, examiner takes official notice on the limitation second order Butterworth bandpass filters. Butterworth filters are well known in the art furthermore, it would be obvious to one of ordinary skill in the art to use Butterworth filters in order to be able to have an easily designed filter with an adjustable passband and cutoff.

Claim 40 analyzed with respect to claim 37-38, Sharples discloses where a first filter is provided for filtering the bottom side-band and a second filter is provided for filtering the top side-band of the signal (Fig. 3 and col. 3 line 1-5).

Sharples does not explicitly disclose bandpass filter. However examiner takes official notice on the limitation bandpass filter. Bandpass filtering means are well known in the art at the time of the invention. In addition it would be obvious to one of ordinary skill in the art at the time the invention was made that the filter type would be determined by design preferences in order to extract the sideband signals.

Claim 42 analyzed with respect to claim 37-38, 40, Sharples discloses where the pass bands of the two filters do not overlap (inherent to Sharples Fig. 2a and col. 3 line 1-5).

Claim 43 analyzed with respect to claim 37-38, 40, Sharples does not explicitly disclose where the two bandpass filters are second-order Butterworth bandpass filters.

However, examiner takes official notice on the limitation second order Butterworth bandpass filters. Butterworth filters are well known in the art furthermore, it would be obvious to one of ordinary skill in the art to use Butterworth filters in order to be able to have an easily designed filter with an adjustable passband and cutoff.

6. Claims 31, 34-35, 41, 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharples (5204980) in view of Collier et al (5404405).

Claim 31 analyzed with respect to claims 27, 30 Sharples does not explicitly disclose where the centre frequency of the first bandpass filter is 31 kHz and that of the second bandpass filter is 45 kHz.

Collier discloses a bandpass filter that passes 23-53 kHz (see col. 1 lines 26-36). In addition it is well known by one of ordinary skill in the art at the time of the invention that the frequency range of the double sideband signal in stereo reception is 23-53 kHz.

Therefore it would be obvious to one of ordinary skill in the art at the time of the



Art Unit: 2615

invention that design preference would determine the center frequency of the filters of Sharples in order to obtain the sideband signals.

Claim 34 analyzed with respect to claim 30, Sharples discloses the first filter and the second filter (col. 3 line 1-5) and demodulation that can occur before or after comparing the sidebands (col. 4 line 11-13).

Sharples does not explicitly disclose, where the output signal of the first bandpass filter is shifted into the base band position by mixing with the 38 kHz auxiliary carrier in a first mixer and then filtered in a first low-pass filter and the output signal from the second bandpass filter is shifted into the base band position by mixing with the 38 kHz auxiliary carrier and then filtered in a second low-pass filter.

Collier discloses where the output signal of a bandpass filter (col. 1 line 28-30) is shifted into the base band position by mixing with the 38 kHz auxiliary carrier in a mixer (col. 1 line 34-36) and then filtered in a low-pass filter (col. 4 line 59-61).

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the receiver with control circuit of Sharples with the decoder of Collier in order have less distortion in the stereo decoder as taught by Collier (col. 1 line 63-64).

In addition it would be obvious to one of ordinary skill in the art at the time the invention was made that a decoder could be implemented before or after the sideband comparison circuitry of Sharples, as disclosed by Sharples (col. 4 lines 11-13) which

Art Unit: 2615

would result in the decoding circuitry of Collier for each side band. Single side band decoding or demodulation is also well known in the art at the time of the invention.

Claim 35, analyzed with respect to claim 34, 30, 27 Sharples in view of Collier disclose where the energy or power of the output signal from the first low-pass filter (Collier; col. 4 line 59-61) is compared with that of the second low-pass filter and the criterion for the quality of reception is derived from a comparison between the two energies or powers and where the reception quality decreases when the difference between the two energies or powers increases, increases when the difference decreases and is at a maximum when they are the same (Sharples; col. 2 line 15-18 and line 60-66 and Fig. 3 and col. 3 line 10-12).

Claim 41 analyzed with respect to claim 37-38, 40, Sharples does not explicitly disclose where the centre frequency of the first bandpass filter is 31 KHz and that of the second bandpass filter is 45 KHz.

Collier discloses a bandpass filter that passes 23-53 kHz (see col. 1 lines 26-36). In addition it is well known by one of ordinary skill in the art at the time of the invention that the frequency range of the double sideband signal in stereo reception is 23-53 kHz.

Therefore it would be obvious to one of ordinary skill in the art at the time of the invention that design preference would determine the center frequency of the bandpass filters of Sharples in order to obtain the sideband signals.

Claim 44, analyzed with respect to claim 37-38, 40, Sharples in view of discloses first filter and second filter (Sharples; Fig. 3 element F1, F2) and demodulation that can occur before or after comparing the sidebands (col. 4 line 11-13).

Sharples does not explicitly disclose where the output of the first bandpass filter is shifted into the base band position by mixing with the 38 KHz auxiliary carrier in a first mixer and then filtered in a first low-pass filter and the output signal from the second bandpass filter is shifted into the base band position by mixing with the 38 KHz auxiliary carrier and then filtered in a second low-pass filter.

Collier discloses where the output of a bandpass filter (col. 1 line 28-30) is shifted into the base band position by mixing with the 38 KHz auxiliary carrier in a mixer (col. 1 line 34-36) and then filtered in a first low-pass filter (col. 4 line 59-61).

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the receiver with control circuit of Sharples with the decoder of Collier in order have less distortion in the stereo decoder as taught by Collier (col. 1 line 63-64).

In addition it would be obvious to one of ordinary skill in the art at the time the invention was made that a decoder could be implemented before or after the sideband comparison circuitry of Sharples, as disclosed by Sharples (col. 4 lines 11-13) which would result in the decoding circuitry of Collier for each side band. Single side band decoding or demodulation is also well known in the art at the time of the invention.

Art Unit: 2615

Claim 45 analyzed with respect to claim 37-38, 40, 44, Sharples in view of Collier disclose where in that the energy or power of the output signal from the first filter is compared with that of the second filter and the criterion for the quality of reception is derived from a comparison between the two energies or powers, and where the reception quality decreases when the difference between the two energies or powers increases, increases when the difference decreases and is at a maximum when they are the same (Sharples; col. 3 line 1-19).

7. Claims 36, 46-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sharples (5204980) in view of Collier et al (5404405) in further view of Wildhagen (6671378).

Claim 36 analyzed with respect to claim 34, 30, 27, Sharples in view of Collier discloses where the correlation is obtained from the output signal of the first filter and the output signal of the second filter and where the reception quality increases with increasing correlation and decreases with decreasing correlation (Sharples; col. 2 line 53-65).

Sharples in view of Collier do not disclose where the cross-correlation is obtained from the output signal of the first low-pass filter and the output signal of the second low-pass filter and where the reception quality increases with increasing correlation and decreases with decreasing correlation.

Wildhagen discloses where the variance is obtained from the output signal of the first filter and the output signal of the second filter and where the reception quality increases with increasing correlation and decreases with decreasing correlation (col. 4 line 12-60).

Art Unit: 2615

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the control circuit of Sharples with the variance method of Wildhagen in order to have reliable information of the noise power in the audio signal as taught by Wildhagen (col.2 line 54-55).

In addition it would be obvious to one of ordinary skill in the art at the time the invention was made that the variance is related and analogous to the cross-correlation.

Claim 46 analyzed with respect to claim 37-38, 40, 44, Sharples in view of Collier do not disclose where the cross-correlation is obtained from the output signal of the first low-pass filter and the output signal of the second low-pass filter and where the reception quality increases with increasing correlation and decreases with decreasing correlation. Wildhagen discloses where the variance is obtained from the output signal of the first low-pass filter and the output signal of the second low-pass filter and where the reception quality increases with increasing correlation and decreases with decreasing correlation (Wildhagen; abstract line 5-11 and col. 4 line 12-60).

Therefore it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the control circuit of Sharples with the variance method of Wildhagen in order to have reliable information of the noise power in the audio signal as taught by Wildhagen (col.2 line 54-55).

In addition it would be obvious to one of ordinary skill in the art at the time the invention was made that the variance is related and analogous to the cross-correlation.

Claim 47 analyzed with respect to claims 37-38, 40, 44-46, Sharples in view of

Art Unit: 2615

Wildhagen and Collier disclose where the signal is received at the input of the first filter and the second filter (Sharples; col. 3 line 1-5), the output of the first filter is connected to the first input of the first mixer whose second input receives the auxiliary carrier, the output of the second filter is connected to the first input of the second mixer, whose second input receives the auxiliary carrier (Collier col. 1 line 31-36 and Wildhagen; col. 4 line 13-14), the output of the first mixer is connected to the input of a first low-pass filter, whose output is connected to the first input of a unit for generating the variance, the output of the second mixer is connected to the input of a second low-pass filter whose output is connected to the second input of the unit for obtaining the variance, and a quality signal for measuring the quality of reception can be tapped from the output of the unit for obtaining the variance (Wildhagen; col. 4 line 12-61).

Claim 48 analyzed with respect to claims 37-38, 40, 44-47, Sharples in view of Wildhagen and Collier disclose, where the output of the unit for obtaining the variance (Wildhagen; col. 4 line 53-60) is connected to the input of a control unit whose output is connected to the control input of the receiver or of an antenna selection switch (Sharples; Fig.1 and col. 2 line 41-55).

Claim 49, analyzed with respect to claims 37-38, 40, 44-47, Sharples in view of Wildhagen and Collier do not explicitly disclose where the bandpass filters are second-order Butterworth bandpass filters.

Art Unit: 2615

However, examiner takes official notice on the limitation second order Butterworth bandpass filters. Butterworth filters are well known in the art furthermore, it would be obvious to one of ordinary skill in the art to use Butterworth filters in order to be able to have an easily designed filter with an adjustable passband and cutoff.

Claim 50, analyzed with respect to claims 37-38, 40, 44-47, Sharples discloses, where the pass bands of the two filters do not overlap (inherent to Sharples Fig. 2a and col. 3 line 1-5).

Claim 51 analyzed with respect to claims 37-38, 40, 44-47, Sharples in view of Wildhagen and Collier do not explicitly disclose where the centre frequency of the first bandpass filter is 31 KHz and the centre frequency of the second bandpass filter is 45 KHz.

However, Collier discloses a bandpass filter that passes 23-53 kHz (see col. 1 lines 26-36). In addition it is well known by one of ordinary skill in the art at the time of the invention that the frequency range of the double sideband signal in stereo reception is 23-53 kHz. Therefore it would be obvious to one of ordinary skill in the art at the time of the invention that design preference would determine the center frequency of the filters of Sharples in order to obtain the sideband signals.

Claim 52 analyzed with respect to claims 37-38, 40, 44-47, Sharples in view of

Art Unit: 2615

Wildhagen and Collier where the auxiliary carrier has a frequency of 38 kHz (Collier; col. 1 line 68).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FATIMAT O. OLANIRAN whose telephone number is (571)270-3437. The examiner can normally be reached on M-F 10:00-6 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FO  
/Vivian Chin/  
Supervisory Patent Examiner, Art Unit 2615